**Course Specification of radiobiology in MD degree in clinical oncology (first**  
**part)**  
**Sohag University Sohag Faculty of Medicine**  
1. Program on which the course is given: MD degree in clinical oncology  
2. Major or Minor element of program: Minor  
3. Department offering the program: clinical oncology and nuclear medicine.  
4. Department offering the course: clinical oncology and nuclear medicine.  
Academic year/ Level: First part  
**A- Basic Information**  
Title: **Course Specification of radiobiology in MD degree in clinical oncology**  
**(first part)**  
**1 – Overall Aims of Course**  
to know the radiobiological effect of different ionizing radiation and radioisotopes  
on different types of normal tissues and tumors.  
**2 – Intended Learning Outcomes of Course (ILOs)**  
**a) Knowledge and understanding:**  
By the end of the course, the student is expected to be able to:  
a1. understand the radiobiological effects of radiotherapy and radioisotopes  
a2. understand the radiosensitivity and radioresistance aspects of different  
tumors and normal tissues  
a3. Explain diferrent fractionation schedules.  
a4. understand the radiobiology of new modalities of radiotherapy.  
a5. understand the principles of radioprotective agents.  
a6. understand the radiosensitizers.  
**b) Intellectual Skills**  
By the end of the course, the student is expected to be able to:  
b1. Analyze the radiobiological effects of ionizing radiation.  
b2. Interpret the terms of radiosensitivity, radiocurability, and radioresistance .  
b3. Evaluate different measures of radiation safety and protection.  
b4. Suggest different fractionation schedules.  
**c) Professional and Practical Skills:**  
c1. Design new radiotherapy modalities.  
c2. Teach different effects of radiation .  
c3. Train radiotherapists for radiation protection measures.  
**d) General and Transferable Skills:**  
By the end of the course, the student is expected to be able to:  
d1. Use appropriate computer based protection methods.  
d2. Present reports for different cellular response to radiation.  
d3. Choose and use new agents as radiosensitizers or radioprotectants.  
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**3- Contents**  
Topic  
Review of cell biology.  
Basic biologic interactions of radiation.  
Cellular response to radiation  
Tissue radiation biology  
Modification of cell and tissue responses to radiation.  
Clinical radiobiology.  
\* goal of radiotherapy.  
\* tumor radiobiology.  
\* radio sensitivity and radiocurablity.  
\* normal tissue.  
\* chemical modifiers in radiotherapy .  
\* new radiation modalities.  
\* new treatment techniques.  
\* hyperthermia  
Early effect and late effect of radiation.  
**4– Teaching and Learning Methods**  
4.1- Lectures  
4.2- Practical lessons  
4.3- Assignments.  
4.4-attention and participating in scientific conferences, workshops and  
thesis discussion to acquire the general and transferable skills needed.  
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**5- Student Assessment Methods**  
Method of assessment The assessed ILOs  
 5.1 Written exams to assess knowledge and understanding.

5.2 Oral exams to assess knowledge and understanding, attitude,  
communication skills and problem solving.

5.3 Observation of attendance and absenteeism

5.4 Questionnaire for field visits assessment

**Assessment Schedule**

Assessment 1: written exam week 24

Assessment 2: oral exam week 24

Assessment 3: practical exam week 24

Assessment 4: Attendance and absenteeism (formative)

**Weighting of Assessments:**

Final-term Examination 50%  
Oral Examination. 30 %  
Practical Examination 20%  
Total 100%

**6- List of References**  
6.1- Course Notes  
Department notes and lectures  
6.2- Essential Books (Text Books)  
Hassan Awad text book  
Elizabeth Latorre---medical radiobiology  
Perez text book  
6.3- Recommended Books  
Gunderson text book

**7- Facilities Required for Teaching and Learning:**  
1. Adequate conditioned space, bathrooms, comfortable discs, good  
illumination and safety security tools.  
2. Teaching tools: screens, computers, data shows, projectors, flip charts,  
white boards, video player, digital video camera, scanners, copiers and  
laser printer.  
3. Computer programs: for designing and evaluating MCQS exams.